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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/628,827

07/28/2003

Matthew Brady Henson

SIG000100

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07/28/2006

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EXAMINER

FAULK, DEVONA E

ART UNIT

PAPER NUMBER

2615

DATE MAILED: 07/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/628,827

Applicant(s)

HENSON ET AL.

Examiner

Devona E. Faulk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 4/25/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-15 and 17-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-15 and 17-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 4/25/2006, regarding prior art Kobayashi and the amended claim language have been fully considered but they are not persuasive.
2. The applicant has amended the independent claims and asserts that prior art Kobayashi does not teach or suggest clamping to a power return potential or ground which effectively prevents a signal of any significant magnitude from being outputted. The examiner asserts that Kobayashi discloses clipping the output of the amplifier at the clipping level VD of the voltage output from the D/A converter (column 5, lines 26-30). Potential is defined as the difference in electrical charge between two points in a circuit. Kobayashi's clipping level VD reads on power return potential. Furthermore the claim language does not recite that the clamping prevents a signal of any significant magnitude from being outputted.
3. The applicant has amended claims 7,9,13,16,20 and 21 to overcome the 112 second rejection regarding the clamping language asserted in the previous office action. The other 112 rejection, regarding the " at initialization" language, has not been overcome. The examiner is maintaining that 112 rejection.

### *Claim Rejections - 35 USC § 112*

4. **Claims 7,9,13,20 and 21** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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5. Claims **7,9,20 and 21** recite “wherein the clamping switch is on to clamp the output to the return potential”, “wherein the clamping switch is turned on to clamp the output to the return potential”, “wherein the clamping switch is turned on to clamp the analog output to the return potential” and “wherein the clamping switch is turned on to clamp the analog output to the return potential. The specification teaches that the clamping switch clamps the analog output of the HP amplifier to the return potential. Since the DAC is operationally connected to the clamping switch also, the claim language needs to clearly identify which analog output is clamped.

Additionally, as asserted in the previous office action, claims 7,9, 20 and 21 recite “wherein the clamping switch clamps the output node to the return potential at initiation of a powering down (up, down) sequence”. The specification teaches that the clamping switch may be turned on to clamp node 36 to ground when the DAC output reaches a designated lower value (page 10, lines 3-5 and subsequently (after initialization of powering up) the clamping switch is turned on to ensure that the output node is clamped to ground and that the initial conditions of the amplifier circuit are noted as follows: the HP amplifier (such as amplifier 31) is off, the HP clamping device (such as switch 38) is off and the DAC (such as DAC 32) is also off (page 8, lines 26-29). That is, at initialization where power is first being applied the HP amplifier and the DAC are still off and the clamping switch is off as well. The examiner asserts that what is claimed does not occur at initialization as recited in the claim.

Claim 13 recites “turning of the clamping when the amplifier is substantially turned on”. Claim 13 is dependent on claim 11. Claim 11 does not recite that a condition exists wherein the amplifier is off or wherein the clamping is turned on.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 2-6,8,10-19 and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hewitt (US 5,796,851) in view of Hewitt et al. (U.S. Patent 5,796,851) in view of Kobayashi (US 5,764,005) in further view of Yahagi et al. (US 6,783,073).

**Claims 6,11,18 and 22** share common features.

Regarding **claims 6,11,18 and 22**, Hewitt discloses an apparatus comprising:

an audio amplifier (22) to generate an output to a load (20);

a digital-to-analog converter (30) to drive the amplifier during at least one of powering up and powering down the amplifier, the digital-to-analog converter to control the amplifier to ramp the voltage at the output at a predetermined rate to reduce rapid voltage changes from being sent to the load during the at least one of powering up or powering down of the audio amplifier (column 3, lines 3-15);

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a control circuit to generate data sent to the digital-to-analog converter during at least one of powering up and powering down the audio amplifier (DSP, 34) (column 3, lines 3-15).

Hewitt fails to explicitly teach but Kobayashi teaches of clamping the output of the amplifier to selectively clamp the output of the amplifier to a power return potential (column 5, lines 26-30). Hewitt implicitly teaches of clipping audio signal (32, column 3, lines 30-32). It would have been obvious to modify Hewitt to clamp the output of the amplifier as taught by Kobayashi in order to adjust the clipping voltage to an optimum voltage (Kobayashi, column 3, lines 19-200).

Hewitt as modified by Kobayashi fails to teach but Yahagi discloses explicitly that the clipping is performed using a clamping switch (column 9, lines 32-35). It would have been obvious to modify Hewitt as modified by Kobayashi to perform the clipping using a clamping switch in order to better control the state of the clamping voltage.

Regarding **claim 11**, Hewitt discloses sending digital data for digital-to-analog conversion during a powering up or powering down of an audio amplifier (column 2, line 62- column 3, line 15), which generates an output to an audio load; converting the digital data to drive the audio amplifier; and using the converted digital data to control the ramping of the voltage at the output to not exceed a predetermined rate to reduce audio pop and click from being heard at the load during the powering up and powering down of the audio amplifier (column 3, lines 3-15).

Regarding **claim 2**, Hewitt further teaches wherein the output of the amplifier (22) to the load is through a blocking capacitor (14), the digital-to-analog converter to control

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the ramp of the voltage at the output to at least one of charging the blocking capacitor to a steady-state reference value at the predetermined rate and of discharging the blocking capacitor from the steady-state reference value at the predetermined rate (column 2, lines 44-54). All elements of claim 2 are comprehended by the rejection of claim 22.

All elements of **claim 3** are comprehended by the rejection of claim 2 (column 1, lines 35-38; column 3, lines 25-35).

Regarding **claim 4**, Hewitt further teaches of a control circuit (DSP) to generate data sent to the digital-to-analog converter during at least one of powering up and powering down the amplifier (column 3, lines 3-15). All elements of claim 4 are comprehended by the rejection of claim 22.

Regarding **claim 5**, Hewitt further discloses that the data from the control circuit ramps the voltage at a substantially linearly ramp rate (Figure 3; column 3, lines 28-39). All elements of claim 5 are comprehended by the rejection of claim 4.

All elements of **claim 8** are comprehended by the rejection of claim 7 (Hewitt, column 3, lines 24-35).

All elements of **claim 10** are comprehended by the rejection of claim 9 (Hewitt, column 3, lines 24-35).

4.

All elements of **claim 12** are comprehended by of the rejection of claim 11.  
(Hewitt, Figure 3)

All elements of **claim 13** are comprehended by claim 12. (Hewitt teaches of the amplifier being operable in a first state prior to power-up and upon assertion of enable signal begins to operate in a second state, column 2, lines 54-62; Hewitt's enable functions as a switch. Yahagi teaches of clamping switch) (column 1, lines 44-58; column 2, lines 54-62).

All elements of **claim 14** are comprehended by claim 12 (Hewitt, column 2, lines 54-62; column 3, lines 24-38).

All elements of **claim 15** are comprehended by the rejection of claim 11 (Hewitt, Figure 3; column 3, lines 36-39).

All elements of **claim 16** are comprehended by the rejection of claim 15 (Hewitt teaches of the amplifier being operable in a first state prior to power-up and upon assertion of enable signal begins to operate in a second state, column 2, lines 54-62; Hewitt's enable functions as a switch. Yahagi teaches of clamping switch) (column 1, lines 44-58; column 2, lines 54-62).

All elements of **claim 17** are comprehended by claim 15 (Hewitt, column 3, lines 3-15).

All elements of **claim 19** are comprehended by claim 18 (See above apropos rejection of claim 18).



***Claim Objections***

8. **Claim 13** is objected to because of the following informalities: Claim 13 recites "turning of the clamping when the amplifier is substantially turned on". The examiner believes it should recite "turning **off** the clamping "

Appropriate correction is required.

***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 571-272-7515. The examiner can normally be reached on 8 am - 5 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-272-7515.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DEF

  
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